



## Food Security; Improving Food Security and Livelihoods

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### Abstract

Food security, as defined by the United Nations' Committee on World Food Security, means that all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life.

Food security exists when “all people, at all times have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”. Close to 800 million individuals do not have access to enough food, 2 billion individuals experience key micronutrient deficiencies, and; 60% of individuals in low-income countries are food insecure.

Food security relates directly to nutrition and health. Typically, food security is thought of as being related to availability and access of foodstuffs. Yet, the threat to food security also lies with urbanization, income disparity, overpopulation, ecosystem degradation, animal health, and food wholesomeness. Food wholesomeness is also an important aspect of nutrition. Wholesomeness is monitored via food safety and food defence programmes, making them critical components of a food security programme as well. This article discusses these interrelations and concepts for future scientific and humanitarian development programmes.

Food insecurity negatively affects human physical, social, emotional, and cognitive development throughout the life course and is a major social and environmental disruptor with serious repercussions for planetary health (i.e., the health of human civilization and the state of the natural systems on which it depends). Food security is related to all of the United Nations Sustainable Development Goals (SDGs). Improved food security governance based on sound, equitable, and sustainable food systems that benefit from modern information and sustainable and equitable agricultural technologies is essential for countries to meet the SDGs.

## **Definition of Food Security**

Food security is a flexible concept as reflected by the many attempts to define it in research and policy usage. The concept of food security originated some 50 years ago, at a time of global food crises in the early 1970s. Even two decades ago, there were about 200 definitions for food security in published writings (Maxwell and Smith, 1992), showing the contextual dependent features of the definition. The current widely accepted definition of food security came from the Food and Agriculture Organization (FAO) annual report on food security “The State of Food Insecurity in the World 2001”: Food security [is] a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 2002). The last revision to this definition happened at the 2009 World Summit on Food Security which added a fourth dimension – stability – as the short-term time indicator of the ability of food systems to withstand shocks, whether natural or man-made (FAO, 2009). Encyclopedia of Food Security and Sustainability, Volume 2

## **Introduction**

Food is our energy source and limited access to food impacts health in multiple ways. Approximately one billion individuals in the world lack adequate amounts of food to meet their nutritional needs and are malnourished (Barrett, 2010). Malnourished individuals are unable to consume adequate amounts of macronutrients and micronutrients. Macronutrients include protein, fat and caloric content (Michaelsen et al., 2009), and micronutrients are the essential minerals and vitamins (Benoist, 2007). The consequences to macronutrient malnutrition are poor immune response, stunted physical and mental growth, lethargy and emaciation (Stephenson et al. 2000; Merriam-Webster Medical Dictionary, 2010b; Merriam-Webster Medical Dictionary, 2010a). Malnutrition of micronutrients such as iron, vitamin A and iodine result in anaemia, decreased immune system function, cretinism, blindness and cognitive impairment (Stephenson et al., 2000). Twenty countries in Africa, Asia, the Western Pacific and the Middle East account for four-fifths of global macro- and micronutrient malnutrition. In these areas, approximately 3.5 million deaths occur per year in children under five, and the deaths are attributed to illness related to undernutrition (Horton, 2008; Black et al., 2008). The World Health Organization (WHO) map for “Children aged under-five stunted, 2000–2008” (World Health Organization, 2010) indicates that the countries where greater than 40% of their children experience nutrition-related growth stunting are concentrated in Africa, South Asia and the South Pacific islands. The purpose of this paper is to discuss the need for improving our preparations and approaches to food security.

## **Dimensions of Food Security**

Four dimensions of food security have been identified according to the definition (FAO, 2008).

- 1) Availability of food produced locally and imported from abroad.

2) Accessibility. The food can reach the consumer (transportation infrastructure) and the latter has enough money for purchase. To such physical and economic accessibility is added socio-cultural access to ensure that the food is culturally acceptable and that social protection nets exist to help the less fortunate.

3) Utilization. The individual must be able to eat adequate amounts both in quantity and in quality in order to live a healthy and full life to realize his or her potential. Food and water must be safe and clean, and thus adequate water and sanitation are involved at this level. A person must also be physically healthy to be able to digest and utilize the food consumed.

4) The fourth domain of Stability, deals with the ability of the nation/ community/ (household) person to withstand shocks to the food chain system whether caused by natural disasters (climate, earthquakes) or those that are man-made (wars, economic crises). Thus, it may be seen that food security exists at a number of levels.

Availability - National; Accessibility – Household; Utilization – Individual; Stability – may be considered as a time dimension that affects all the levels. All four of these dimensions must be intact for full food security. More recent developments emphasize the importance of sustainability, which may be considered as the long-term time (fifth) dimension to food security. Sustainability involves indicators at a supra-national/regional level of ecology, biodiversity and climate change, as well as socio-cultural and economic factors (Berry et al., 2015). These will affect the food security of future generations.

### **Causes of Food Insecurity**

Household food insecurity (HFI) is the result of poverty, poor health of the household member or members, and suboptimal livelihood and household management strategies (Food security is closely related to, but not synonymous with, nutrition security and health. Nutrition security is attained by individuals when the body tissues are exposed to optimal amounts of nutrients and other essential substances. Nutrition security results from the combination of household food security, health care access security, and access to other basic human needs including adequate sanitation. Food security and the other determinants of nutrition security are linked with each other. For example, a household with limited economic access to food may decide to not seek medical care for a child or to not purchase prescribed medications. For food security to be a reality, households need to have unrestricted access to a healthy and nutritious diet. Access to healthy diets, in turn, depends on having adequate economic resources and for foods to be readily available in the country, region, and communities in which the households are located. National food availability is a function of the balance between foods grown in the country plus foods imported minus foods exported, spoiled, or fed to animals. Therefore, the maintenance of an affordable and sustainable healthy food supply at the global level is paramount for achieving household food security and nutrition security worldwide. For this reason, it is crucial to understand and address climate change, agricultural commodity price policies, armed conflicts, and ultimately, the health of our planet from a household food security perspective in the context of the UN Sustainable Development Goals (SDGs), which specifically call for ending hunger, achieving food security and improved nutrition, and promoting sustainable agriculture globally (8).

### **Improving food security and livelihoods**

The first issues of food security are availability and accessibility. These are exacerbated by the overuse of resources and poor distribution due to income inequity or social disturbance. Encouraging growth in agricultural sectors that focus on locally consumed crops rather than export markets may stimulate an influx of rural and community-based development funds and create a national market. Such projects would need to be based on local structure, knowledge and priorities and operate within the capacity of the ecosystem. Education is also a key as it increases literacy, making it easier to standardize and implement programmes during development. In addition, the

education of women has been shown to lead to a reduction in family size as well as a reduction in poverty, and this results in an improved nutritional status for the family (Mishra and Retherford, 2000; Lomperis, 1991; Tyer-Viola and Cesario, 2010). A combination of these efforts can reduce the stress on the environment and increase local food distribution and availability. Food safety increases with knowledge and better infrastructure, but foodborne illness never disappears. However, several things can be done to mitigate this problem. Fortunately, better nutrition decreases susceptibility to illness, so addressing availability and accessibility of food is an important task. Education on the identification of illness in animals, proper slaughtering, food storage, food handling, food preparation and threats from food can also help.

Components that have proven effective in other countries can be modified and utilized in another country that desires to address these food-related issues. The creation of mirror organizations may not be completely appropriate, and flexibility during the process will be critical. Addressing macronutrient and micronutrient deficiencies as well as animal management, food storage and preparation methods, which increase food security, will really only bring superficial results. The greater issues lie in the global population growth, industrial-based change such as globalization, and environmental stewardship that will address sustainability and climate change.

Many of the changes needed to improve livelihoods and food security would be of general benefit. These include the need for family planning to reduce the anticipated 50 percent increase in population by 2030, increased and better education and employment, improvements in governance at all levels, and action to mitigate the impact of climate change.

As for strategies pertaining more specifically to food security, nutrition and rural livelihoods, they should build on the following five pillars:

1. Improved governance for food security
2. Enhanced food production and improved livelihoods.
3. Strengthened safety nets.
4. Reduced exposure to market volatility.
5. Strengthened farmer institutions and increased knowledge relevant to food security.
6. Food security monitoring and early warning systems. This is vital as climate change plays havoc with weather patterns and regional turmoil yields socio-economic unrest.

## **Conclusion**

Food security is a multi-dimensional topic. It does not just address the availability of food, but it also addresses its cost, cultural appropriateness, the balanced nature of its protein, fat, carbohydrate and micro-nutrient make-up, its source and the production practices used to cultivate and harvest food products, as well as freedom from contamination after harvest. This relates to both animal and plant based foods and is an issue across the globe.

Food must not only meet our macro- and micronutrient needs, but it also must not cause disease in those who consume it. Efforts to address these topics must take into consideration community-based approaches and well-rounded interventions.

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